PRE-REHABILITATION PLAN FOR THE PARK AND BLUE LAKE CHAIN IN GRANT COUNTY, WASHINGTON

Initiated by Chad Jackson, District 5 Fish Biologist
Washington Department of Fish and Wildlife
Fish Program/Management Division/Region 2
Ephrata, WA

I. PROPOSAL

i. Background:

The Blue and Park Lake Chain includes Park, Blue, Vic Meyers (Rainbow), Mirror, and Alkali lakes (and all inlets and outlets) is located just north of the City of Soap Lake in Grant County. Moving north to south, Vic Meyers Lake is a small and seasonal water that supports modest trout fishing effort during the year. Mirror Lake is a small and very shallow water located between Vic Meyers and Park lakes. This lake is more of a wide wetland-like area within the inlet into Park Lake. Mirror Lake is not managed for trout fishing. Park and Blue lakes are the largest waters in the chain at 342 and 532 surface acres, respectively. Alkali Lake is the last water waterbody in the chain and located just south of Blue Lake. This lake supports a low level warmwater fishery for primarily bass and panfish. A fish barrier located at the outlet of Blue Lake prevents re-infestation movement of warmwater fish from Alkali Lake upstream into the rest of the lake chain.

Park and Blue lakes are among the state's most popular destination trout fisheries. Both lakes support thousands of angler trips on the opening day of fishing (fourth Saturday in April) alone. Annually, between 40-60% of all anglers creeled on opening day originate from outside of Grant and Adams counties. Many of those anglers originate from western Washington. Four private resorts and one state park cater to Blue and Park lake anglers. Several anglers also camp and fish along the many pull-offs along State Route 17 that borders the west side of both lakes.

During opening day 2016 the trout fisheries in Park and Blue lakes had collapsed. Creel checks on that day showed less than one trout harvested per angler. The Washington Department of Fish and Wildlife (WDFW) harvest target for opening day lakes is ≥2.5 trout per angler. Park and Blue lakes, when free or relatively free from undesirable fish species, can average much higher harvest rates than the target rate. WDFW fish community surveys in 2013 and 2016 in Park and Blue lakes showed high abundances of Yellow Perch and Smallmouth Bass. Other fish species in both lakes include Largemouth Bass, Bluegill, Pumpkinseed, and bullhead catfish. The young of all species directly compete with Rainbow Trout for the same food resources (e.g., zooplankton and aquatic insects). The larger Yellow Perch, Smallmouth and Largemouth Bass, and bullhead catfish prey upon fingerling trout post-release. Both competition and predation negatively affect Rainbow Trout survival and growth and fishing success.

The WDFW maintains quality trout fishing in Park and Blue lakes through periodic treatments, called rehabilitations, using the aquatic pesticide rotenone. Rotenone is a naturally occurring and organic substance derived from the roots of certain tropical plants. Indigenous peoples have used rotenone for centuries to gather fishes in places where these plants occur naturally. Blue and Park lakes and associated waterbodies have been treated with rotenone nine times over the past six decades. Rehabilitations have occurred in 1952, 1959, 1963, 1969, 1976, 1981, 1986, 1996, and 2006. Pre-1986, rehabilitations occurred about every 5-6 years when fishery biologists observed a drop off in fishing success and/or documented the presence of nuisance fish species. Methods to treat lakes with rotenone pre-1986 were also not as effective as current ones and environmental guidelines were largely not present. Post-1986, rehabilitations have occurred once every decade. Methods for treating lakes with rotenone are now more effective, which results in longer time periods between treatments. Environmental guidelines governing lake rehabilitations are now stricter. The proposed treatment of Park and Blue lakes and associated waterbodies marks 10 years since the last treatments (2006).

ii. Justification:

Lakes managed for Rainbow Trout offer the greatest fishing opportunity when maintained as monocultures free or mostly free from competing, predatory, and/or other undesirable fish species (e.g., Pumpkinseed, Yellow Perch, bullhead catfish, Common Carp, Tench, bass, etc.) that negatively impact their survival and growth. WDFW keeps lakes free from competing, predatory, and/or undesirable fish species through periodic treatments using the aquatic pesticide rotenone. WDFW has treated lakes in Washington with rotenone since the 1940s.

Both Park and Blue Lake have been managed for decades as “trout-only” lakes and have been very popular because of dependably good catch rates but angler success has been poor the past couple years and “crashed” in 2016. Because of the reasons mentioned above, the unacceptably low catch rate in both lakes has already resulted in lower use and numerous complaints by anglers. Rehabilitating these lakes will eradicate or nearly eradicate all undesirable fish species present and restore the extremely popular trout fisheries. This will not only help meet angler’s desires and expectations, but improved trout fisheries in these lakes will bring much-needed economic stimulation to the state park, the resorts on the lakes and the surrounding communities that depend on angler visits every year.

iii. Physical Description of Water(s) Proposed for Treatment:

a. Water Name: Vic Meyers Lake
b. Location: Grant County, T24N & R27E-Section 12
c. Size: 12 surface acres
d. Average Depth: 10 feet
e. Maximum Depth: 15 feet
f. Water Volume: 120 acre-feet
g. Inlet Description: Subterranean flow
h. Outlet Description: Permanent flow into Park Lake. Outlet includes a wide spot called Mirror Lake and flow from Delaney Springs and Deep Lake.
i. Public Access: Sun Lakes State Park; includes a primitive boat launch, parking area, public, restrooms, camping, and shoreline access.
j. Land Ownership: Washington State Park (Sun Lakes State Park)
k. **Established Resorts:** None on lake.

a. Water Name: Mirror Lake (including inlet to Park Lake)
b. Location: Grant County, T24N & R27E-Section 12
c. Size: 11 surface acres
d. Average Depth: 2 feet
e. Maximum Depth: 7 feet
f. Water Volume: 22 acre-feet
g. Inlet Description: Permanent flow from Vic Meyers Lake, Delaney Springs, and Deep Lake
h. Outlet Description: Permanent flow into Park Lake.
i. Public Access: Public can access this lake, but there is no amenities.
j. Land Ownership: Washington State Park (Sun Lakes State Park)
k. **Established Resorts:** None on lake.

a. Water Name: Park Lake
b. Location: Grant County, T24N & R27E-Sections 10, 11, and 15
c. Size: 342 surface acres
d. Average Depth: 38 feet
e. Maximum Depth: 85 feet
f. Water Volume: 13,049 acre-feet
g. Inlet Description: Permanent flow from Vic Meyers Lake. Outlet includes a wide spot called Mirror Lake and flow from Delaney Springs and Deep Lake.
h. Outlet Description: Permanent flow into Blue Lake (~175 meters in length).
i. Public Access: (1) Sun Lakes State park; includes a primitive boat launch, parking area, day use area, public restrooms, camping, and shoreline access. (2) Washington Department of Transportation (DOT) land along State Route 17 on the west side of the lake. Shoreline fishing access and camping allowed. No other amenities. (3) Sun Lakes Park Resort (private); includes four lane concrete boat launch and dock system, day use area, restrooms, camping, and shoreline access
j. Land Ownership: 70% private and 30% public
k. Established Resorts: Sun Lakes Park Resort (private) and Sun Lakes State Park (public)

a. **Water Name:** Blue Lake
b. **Location:** Grant County, T24N & R27E-Sections 20, 21, and 29
c. **Size:** 532 surface acres
d. **Average Depth:** 40 feet
e. **Maximum Depth:** 69 feet
f. **Water Volume:** 21,353 acre feet
g. **Inlet Description:** Permanent flow from Park Lake (~175 meters in length).
h. **Outlet Description:** Permanent flow into Alkali Lake (~0.75 miles in length). A water control structure and rotating drum type fish screen is located at the top of the outlet stream. The control structure and rotating drum acts as an upstream fish passage barrier.
i. **Public Access:** (1) A WDFW access site on the southeast side of Blue Lake. Access site includes a primitive boat launch, large parking area, and restrooms. (2) DOT and WDFW land along State Route 17 on the west side of the lake. Shoreline fishing access and camping allowed. No other amenities. (3) Three private resorts (Blue Lake, Laurent's, and Coulee Lode) with boat launches, dock systems, day use areas, restrooms, camping, and shoreline access.
j. **Land Ownership:** 70% private and 30% public
k. **Established Resorts:** Three private resorts (Blue Lake, Laurent's, and Coulee Lodge)

a. **Water Name:** Alkali Lake
b. **Location:** Grant County, T23N & R26E-Section 1 and T24N & R26E-Section 36
c. **Size:** 293 surface acres
d. **Average Depth:** 8 feet
e. **Maximum Depth:** 14 feet
f. **Water Volume:** 2,449 acre feet
g. **Inlet Description:** Permanent flow from Blue Lake (~0.75 miles in length)
h. **Outlet Description:** Annual flow into Lake Lenore. Outlet is dry except for the months of March through April. Outlet flows through rock fill under State Route 17.
i. **Public Access:** WDFW access site with parking area, restrooms, and shoreline fishing access.
j. **Land Ownership:** 50% private and 50% public
k. **Established Resorts:** None

iv. Proposed Fish Management Action(s):

a. **Water Name:** Vic Meyers Lake
b. **Target Species:** Yellow Perch, Smallmouth and Largemouth Bass, Bluegill, Pumpkinseed, and bullhead catfish
c. **Date Last Rehabilitated:** November 2006
d. **Proposed Treatment Date:** November 2016
e. **Replanting Date:** April-May 2017
f. **Species:** Rainbow, Brown, and Brook trout
g. **Size(s):** Rainbow Trout catchables (≤2.5 fish per pound; fpp) and fingerlings (≤100 fpp), Brown Trout fingerlings (≤100 fpp), and Brook Trout fingerlings (≤100 fpp)
h. **Proposed Planting Rate:** 2,400 catchable Rainbow Trout (200 fish/acre), 2,880 fingerling Rainbow Trout (240 fish/acre), 400 fingerling Brown Trout (33 fish/acre), and 960 Brook

Trout (80 fish/acre).

i. **Proposed Toxicant:** Powder rotenone and CFT Legumine liquid rotenone
j. **Method of Application:** Slurry (powder) and Spray (liquid)

a. **Water Name:** Mirror Lake (including inlet into Park Lake)
b. **Target Species:** Yellow Perch, Smallmouth and Largemouth Bass, Bluegill, Pumpkinseed, and bullhead catfish
c. **Date Last Rehabilitated:** November 2006
d. **Proposed Treatment Date:** November 2016
e. **Replanting Date:** No trout stocking planned
f. **Species:** NA
g. **Size(s):** NA
h. **Proposed Planting Rate:** NA
i. **Proposed Toxicant:** CFT Legumine liquid rotenone
Method of Application: Spray

a. **Water Name:** Park Lake
b. **Target Species:** Yellow Perch, Smallmouth and Largemouth Bass, Bluegill, Pumpkinseed, and bullhead catfish
c. **Date Last Rehabilitated:** November 2006
d. **Proposed Treatment Date:** November 2016
e. **Replanting Date:** April-May 2017
f. **Species:** Rainbow, Brown, and Tiger trout
g. **Size(s):** Rainbow Trout catchables (≤2.5 fish per pound; fpp) and fingerlings (≤100 fpp), Brown Trout fingerlings (≤100 fpp), and Tiger Trout fingerlings (≤100 fpp)
h. **Proposed Planting Rate:** 69,000 catchable Rainbow Trout (200 fish/acre), 113,600 fingerling Rainbow Trout (332 fish/acre), 6,000 fingerling Brown Trout (18 fish/acre), and 4,000 Tiger Trout (12 fish/acre).
i. **Proposed Toxicant:** Powdered rotenone and CFT Legumine liquid rotenone
j. **Method of Application:** Slurry (powder) and Spray (liquid)

a. **Water Name:** Blue Lake
b. **Target Species:** Yellow Perch, Smallmouth and Largemouth Bass, Bluegill, Pumpkinseed, and bullhead catfish
c. **Date Last Rehabilitated:** October 2006
d. **Proposed Treatment Date:** October 2016
e. **Replanting Date:** April-May 2017
f. **Species:** Rainbow, Brown, and Tiger trout
g. **Size(s):** Rainbow Trout catchables (≤2.5 fish per pound; fpp) and fingerlings (≤100 fpp), Brown Trout fingerlings (≤100 fpp), and Tiger Trout fingerlings (≤100 fpp)
h. **Proposed Planting Rate:** 104,600 catchable Rainbow Trout (200 fish/acre), 176,000 fingerling Rainbow Trout (331 fish/acre), 6,000 fingerling Brown Trout (11 fish/acre), and 4,000 Tiger Trout (8 fish/acre).
i. **Proposed Toxicant:** Powdered rotenone and CFT Legumine liquid rotenone
k. **Method of Application:** Slurry (powder) and Spray (liquid)

a. **Water Name:** Alkali Lake
b. **Target Species:** NA
c. **Date Last Rehabilitated:** October 2006. Alkali Lake was not physically treated but it was listed in the treatment plan because it may have received water containing rotenone from

Blue Lake (receiving and detoxification basin).

d.
e. **Proposed Treatment Date:** October 2016. Alkali Lake will not be physically treated but it in the treatment plan because it may receive water containing rotenone from Blue Lake (receiving and detoxification basin).
f. **Replanting Date:** No trout stocking planned
g. **Species:** NA
h. **Size(s):** NA
i. **Proposed Planting Rate:** NA
j. **Method of Application:** Natural flow of treated water via Blue Lake outlet.

v. Proposed Maximum Concentration and Total Amount of Toxicant Used (@5%):

a. **Vic Meyers Lake:** ≤4.0 ppm; 1,142 pounds of powdered and 20 gallons of liquid rotenone
b. **Mirror Lake (including inlet into Park Lake):** ≤4.0 ppm; 29 gallons of liquid rotenone
c. **Park Lake:** ≤2.0 ppm; 53,240 pounds of powdered and 60 gallons of liquid rotenone
d. **Blue Lake:** ≤2.0 ppm; 87,120 pounds of powdered and 60 gallons of liquid rotenone
e. **Alkali Lake:** NA (Not physically treated. Natural flow of treated water via Blue Lake outlet. Receiving and detoxification basin only.)

vi. Crew Description:

A crew of approximately 20-25 staff will be required to treat Park and Blue lakes. Each lake will take between four to six days to complete. Approximately 12 staff will be operating pumper and spray boats applying rotenone to the water. Another eight to 13 staff will be located on shore loading rotenone into boats, rinsing used containers, and loading them into garbage receptacles. A smaller crew of two to four staff is required to treat Vic Meyers and Mirror lakes. The District 5 Fish Biologist (Chad Jackson) will act as the project lead overseeing all aspects of the treatment. Chad Jackson possesses a valid Washington pesticide applicators license. Other WDFW staff, some with valid pesticide applicator licenses and others without, will assist the project lead with all aspects of the treatment.

II. INTENDED OUTCOME AND MEASURE(S) OF SUCCESS

The intended outcome of the rehabilitation is to eradicate or nearly eradicate all undesirable fish species present and restore the quality Rainbow Trout fisheries in Park, Blue, and Vic Meyers lakes. Treatment success will be measured primarily through angler success during opening day creel surveys. Trout harvest rates should average ≥2.5 fish per angler on opening day. Additionally, periodic fish community surveys using electrofishing and/or gillnetting will be used to determine the percent kill of undesirable fish species and/or their reestablishment in any of the treated waters listed above. As a result of the improved trout fisheries in these waters, we expect angler-days to increase, which will then result in a

substantial economic boost to the state park, the lakeside resorts and the surrounding communities.

III. NATURAL RESOURCE IMPACTS

Impacts to natural resources in treated waters include the eradication or near eradication of targeted undesirable fish species and any remaining rainbow trout. Varying levels of mortality will be suffered by other aquatic biota including phytoplankton, zooplankton, and benthos (e.g., insects, crayfish, snails, clams, etc.). However, according to the literature these species recover to at least pre-treatment levels and in several cases recovery exceeds pre-treatment levels. Recovery of these species is immediate because a 100% kill is never achieved, abundances of certain species (e.g., phytoplankton and zooplankton) is naturally low during the fall, the eggs of some species are already deposited in the sediment and are not affected by rotenone, and/or the organisms reside in the sediment that naturally detoxifies rotenone. Additionally, amphibians that have not metamorphosed during the fall and/or species that overwinter with gills could be impacted during treatment. The most common amphibian species in the surrounding area impacted by lake rehabilitations is the non-native bullfrog.

IV. RECREATIONAL IMPACTS

Park, Blue, and Vic Meyers lakes are seasonal fishing waters and thus do not support winter and early spring fishing opportunities. Therefore, no negative recreational fishing impacts during the winter or early-spring are expected. Recreational fishing in 2017 at Park, Blue, and Vic Meyers lakes will not be impacted due to the rehabilitation. WDFW will stock each lake with catchable-size (11-13 inches at release) Rainbow Trout before opening day, 2017 to ensure there is no interruption in angling opportunity. After opening day (fourth Saturday in April) 2017, WDFW will resume planting fingerling Rainbow Trout into all three lakes to provide future fishing opportunities in the most economical and efficient manner.

V. ECONOMIC IMPACTS

Economic impacts to local economies due to the lake treatments are not anticipated, in fact, we expect a post-treatment economic boost because of improved fishing. Park, Blue, and Vic Meyers lakes are seasonal fishing waters and thus do not support winter and early spring fishing opportunities. Furthermore, the WDFW will stock all three lakes with catchable-size (11-13” at release) Rainbow Trout just prior to opening day 2017 so there is no interruption in angling opportunity. Local economies should see an increase in spending by anglers once the trout fisheries in Park, Blue, and Vic Meyers are restored and fishing improves. Park and

Blue lakes are destination fisheries routinely visited by local, out-of-area, and non-resident anglers.

VI. MITIGATION FOR ADVERSE IMPACTS

Shoreline and nearshore (within ¼ mile of shoreline) landowners will receive advanced notice of the proposed lake treatments. This advanced notice will detail all restrictions during the treatment. Those same residents with surface water rights will be offered an alternate water supply during treatment and until all waters naturally detoxify.

The WDFW will stock Park, Blue, and Vic Meyers lakes with catchable-size (11-13" at release) Rainbow Trout just prior to opening day 2017 so there is no interruption in fishing opportunities.

VII. OTHER RELATED FISH MANAGEMENT ACTION(S)

At this time no other fish management related action(s) will be undertaken by WDFW.

VIII. PUBLIC NOTIFICATION

The WDFW will hold public meetings locally in Region 2 in either Ephrata or Moses Lake and at the Natural Resources Building in Olympia. The Region 2 public meeting is tentatively scheduled for Monday July 25th, 2016 (meeting location TBD). The Olympia public meeting date and location is TBD at this point in time. The purpose of these meetings is to alert the general public of the proposed treatments, collect public comments, and assess public opinion of the proposed project. Notice of the public meeting will be made through a WDFW press release and ads in local newspapers. The WDFW will also post an announcement of this proposal on its State Environmental Policy Act (SEPA) Project Review web page in order to provide the general public an opportunity to learn about and comment on the proposals.

Additionally, all landowners within ¼ mile of the project area will receive two notification letters about the proposed treatments. Additionally, all landowners within ¼ mile and possessing valid water rights will receive three letters about the proposed treatment and identify all water use restrictions. Prior to treatment and until the lakes naturally detoxify, WDFW will sign all points of access alerting the public about the treatment.